

## AROMATIC CONCENTRATES

Also known as: C5+, Pyrolysis Gasoline, Pentenes Plus

### WHAT ARE AROMATIC CONCENTRATES?

Aromatic concentrates are purified mixtures of chemicals found in crude oil. These mixtures are used to make gasoline and other fuels. They are strong-smelling liquids that range in color from yellow to black. Aromatic concentrates are made up of other chemicals: benzene (45%), dicyclopentadiene (13%), cyclopentadiene (7%), and toluene (6%). The remaining 29% of the formula is a blend of other chemicals found in crude oil.

If spilled, aromatic concentrates evaporate quickly. However, part of the spill can go into the air, the soil, and sink down into the groundwater. When spilled in lakes or streams, they evaporate more slowly.

### HOW ARE PEOPLE EXPOSED TO AROMATIC CONCENTRATES?

**Breathing:** Aromatic concentrates evaporate quickly and could contaminate the air near industries where they are used or in places where they are disposed. If home water supplies are contaminated, people could inhale the chemical's vapors while bathing, washing, or cooking.

**Drinking/Eating:** People may be exposed by drinking contaminated groundwater.

**Touching:** People may be exposed if they handle the chemical or contaminated soil. People may also be exposed if they bathe or wash with contaminated water.

### DO STANDARDS EXIST FOR REGULATING AROMATIC CONCENTRATES?

There are no standards for regulating aromatic concentrates. However, there are standards for some of the chemicals that make up the mixture. We will focus on the major ingredient, benzene, in this section.

**Water:** The federal and state standards for benzene are both set at 5 parts per billion (ppb). We suggest you stop drinking water containing more than 5 ppb benzene. If the level of aromatic concentrates is very high in your water, you may need to avoid using it for washing, bathing or for other purposes. Contact your local public health agency for more information specific to your situation.

**Air:** No standards exist for the amount of benzene allowed in the air of homes. We use a formula to convert workplace limits for benzene to home limits. Based on the formula, we recommend levels of benzene be no higher than 0.2 parts per million (ppm). You can smell benzene when levels reach 0.2 ppm.

The Wisconsin Department of Natural Resources regulates the amount of the individual chemicals found in aromatic concentrates that can be released by industries.

## WILL EXPOSURE TO AROMATIC CONCENTRATES RESULT IN HARMFUL HEALTH EFFECTS?

The following symptoms may occur immediately or shortly after exposure to levels over 100 ppm in air of aromatic concentrates:

- Breathing problems and irritation of the throat and lungs
- A feeling of light-headedness followed by headache, confusion, dizziness, drowsiness, and loss of balance
- Temporary changes in liver or kidney functions
- Development of an irregular heart beat and blood pressure changes
- Convulsions, coma, blurred vision, and tremors at *very* high levels

The following health effects can occur after several years of exposure to some of the chemicals in aromatic concentrates:

**Cancer:** Leukemia can develop after repeated exposure to benzene. 1,3-butadiene, which makes up less than 2% of the mixture, is suspected of causing cancer in humans.

**Reproductive Effects:** It is not known whether exposure to low levels of aromatic concentrates can affect reproduction.

**Organ Systems:** The nervous system, blood-forming tissues, liver, kidneys, and lungs can all be affected by exposure to aromatic concentrates. Anemia is a common response to work place exposure. Allergic skin rashes may occur as a result of direct contact.

In general, chemicals affect the same organ systems in all people who are exposed. A person's reaction depends on several things, including individual health, heredity, previous exposure to chemicals including medicines, and personal habits such as smoking or drinking. It's also important to consider the length of exposure to the chemical; the amount of chemical exposure; and whether the chemical was inhaled, touched, or eaten.

## CAN A MEDICAL TEST DETERMINE EXPOSURE TO AROMATIC CONCENTRATES?

Benzene can be measured in blood and breath. In the body, it changes to a chemical called "phenol," which can be measured in urine (see benzene fact sheet). Other tests can be done by a doctor to determine the effects on the liver, kidneys, and blood.

*Seek medical advice if you have any symptoms that you think may be related to chemical exposure.*

This fact sheet summarizes information about this chemical and is not a complete listing of all possible effects. It does not refer to work exposure or emergency situations.

## FOR MORE INFORMATION

- Poison Control Center, 800-815-8855
- Your local public health agency
- Division of Public Health, BEH, 1 West Wilson Street, Rm. 150, Madison, WI 53701-2659, (608) 266-1120 or Internet: <http://www.dhfs.state.wi.us/eh>



Prepared by the  
Wisconsin Department of Health and Family Services  
Division of Public Health with funds the  
Agency for Toxic Substances and Disease Registry,  
Public Health Service,  
U.S. Department of Health and Human Services.

Printed on recycled paper

(POH 4586 - Revised 12/2000)